

AVIATION

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The Junkers G-24 passenger airliner

VOLUME
XXII

SPECIAL FEATURES

NUMBER
12

AIR-COOLED FIGHTERS OR WATER-COOLED?
THE FLIERS' ASPECTS OF AEROGRAPHY
NAVY AWARDS AIRCRAFT CONTRACTS

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Terms Which Damage Aviation

AN EDITORIAL appearing in the Feb. 28 issue of *AVIATION* in which the editorials were made that the term "emergency field," applied to the extraordinary landing fields which are such important items in the make-up of an airway, not only tended to give a wrong impression of the real significance of these fields but referred to a use of them which was tightly strung out, has brought forth some interesting ideas from readers. This is the most significant since it tends to show that every word in the aeronautical world are beginning to think that the time is ripe for a revision of some of the terms which have now become common in aeronautical conversation.

Aeronautics is a development which is being pushed strongly, though perfectly legitimately, by all who are frightened enough to visualize its tremendous future in commercial life. Many who are now engaged in promoting civil aviation are among the pioneers of flying, at least gained wide experience during the war when flying, even then, was in its infancy. Like all new developments, aviation had its short comings and there were certainly short and ready to handle our emergency. In discussing operations, terms were framed and words coined to describe conditions and conditions and then have, very naturally become part of the vocabulary of aeronautics. We frequently use them without thinking of their third meaning. Yet the simplest itself has outgrown many of these terms.

A civilian pilot, flying for pleasure from Calverton to Dayton, decides to land at a point along the route to locate himself accurately and check his direction—a perfectly natural and feasible thing to do. Yet we say that he has been "faced down" or has had a "faced landing."

How often do those of the "old world," who are not too busy to drive cross-country in automobiles, stop at a village to inquire their whereabouts? And how the country are these some people to be seen, pulled by the country roads, "faced down" or "faced down" they have "faced down." That is the ditch in which they are stuck and to permit others to pass along the highway, known as an "emergency" situation!

With the extensive use which is already being made of aviation by the general public and the rapid growth in this aspect, it is extremely important that all of our regular terms should be avoided those that will have, and, in fact, are already having, a very adverse effect upon the forthcoming public. Now in the time when everyone of the aeronautical fraternity should constitute himself a committee of one to consider and correct all use of inaccurate terms in reference to aviation.

The Return of the Twin Engine Plane

IT FREQUENTLY happens in all spheres of life that ideas which have been tried and discarded many years ago return to favor with changed ideas and allied developments along other lines. And aeronautical engineering is no exception to the rule. In fact, it is not infrequent for the aeronautical engineer to run up against ideas and methods of solving various problems which were tried by the earliest pioneers with little success but which, in the light of modern development, become perfectly feasible propositions.

There is the possibility that this may be the case in regard to the twin-engine airplane.

The first and twin engine airplanes were built partly in the hope that they would fly on one engine in the event of failure in the other engine, and partly with the desire to construct larger aircraft. In the absence of high-powered engines with which to power such planes, research had to be made to the twin engine arrangement. While it is true that the wartime planes, and immediately by post war machines of this type were, on occasion, able to stagger along on one engine if badly loaded, it was found that these were very much more complicated, less efficient aerodynamically and so more expensive than even the most modern single engine machine. This fact and the development of higher powered engines has brought the twin engine machine into disfavor.

During the past few years, however, there has been a noticeable return of the twin-engine type of airplane, particularly so in the case of seaplanes. Undoubtedly, this has been made possible by improved aerodynamic efficiency, by lighter structural weight and by the fact in seaplanes which are now being produced.

A practical consideration which was being about the return of the twin-engine machine is the demand for higher performance. Regular air transport operations are demanding the necessity for an aircraft having a high speed well in excess of 100 m.p.h., or 120 m.p.h., in order that a reasonable degree of speed may be maintained in the face of adverse winds. A plane which, while retaining a reasonable landing speed, is capable of flying at 120 m.p.h. top speed, must of necessity be able to maintain altitude at level flight at this speed as but a small proportion of the power is required at the high speed. It has been suggested that here there is a possible field for the two-engine machine capable of flying on one engine. Such a plane might be used in air mail transportation, in photo-reconnaissance work and in private flying—in fact in all cases where extreme performance, both in speed range and load carrying capabilities, must be obtained with maximum pay load.



An experimental Boeing plane for the Air Corps equipped with the inverted Puffin type for 12 water-cooled engines.

It may also be stated that, in the United States at least, much more experience has been had in air-cooled designs and that successful air-cooled designs are comparatively recent. It would appear that we may, therefore, expect greater improvements in reducing weight and increasing power and in refinements of design and equipment to take place in the air-cooled than in the water-cooled field. The Wasp is also a new engine, and, while no doubts have shown up during the short period of service, it will unquestionably be a better one than a year or two from now than it is today.

Before actual experience was gained with the new air-cooled fighters, I had a few impressions concerning them which seem to be somewhat general. I know that Great Britain had developed air-cooled fighters since the War ended the 400 hp. Bristol Jupiter, that their planes had a pretty decent performance despite the fact that they were able to climb 30 ft. with considerable "superboost" hanging around, and that their newest design is doing very large, girthing them a superior landing speed of about forty miles per hour. Judging by England's lack of World records it seemed to me that these air-cooled planes could not be very fast.

Almost everyone was surprised, however, at the speed which the Wright Apache demonstrated in the first five-foot record plane race during the National Air Races at Paderborn last year. I had also believed that any air-cooled job could be considerably lighter than a nearly similar water-cooled engine and that it would be markedly superior in climb

over its inferior in speed. Some of these impressions were decidedly erroneous.

In actual test the comparisons are entirely different. The air-cooled plane is nearly equal to the water-cooled machine in horizontal speed with the Wasp turning 1500 rpm and the D-12-30 turning 2000 rpm. Also, the air-cooled job turns the top speed much more rapidly in horizontal flight and in power dives. In drag sink down the water-cooled plane actually goes much more quickly. The air-cooled fighter will outclimb the water-cooled machine and will decidedly outmaneuver it. The word maneuver is a very indefinite one. In this instance, it means that the air-cooled machine has less engine response to the controls faster and with less effect and will turn in tighter circles than the water-cooled plane. This is due not only to the lighter weight of the air-cooled type but also, to some extent, to better balance with the stress of greatly increased lift and slightly faster roll. On the other hand, the smooth running water-cooled engine gives less vibration and delay combined with steadiness due to its greater weight, is conducive to more accurate shooting. The difference in the regard is rounded by many pilots to be practically negligible.

A look at several of these, could be written on fighting and combat methods and tactics. In comparing the relative fighting value of two engines in any plane of combat it is essential that neither plane have no tactical advantage and that each use the same methods. In close "dog fighting" the



The Boeing B-1 biplane with Puffin 12-30 hp, 12 water-cooled engines.



An experimental Boeing biplane equipped with the Pratt & Whitney Wasp air-cooled engine, on top.

air-cooled fighter will not only turn inside the water-cooled machine so that the latter cannot bring his guns to bear, but it will also climb above the latter while on a steep fighter spiral and, thus, gain a position from which it can pull out vertically, so that the latter could plane for a long stretch before being attacked from superior heights, unless the latter is a superior performer from the merits of the two types.

Either plane should be able to get out of hand on great height on a plane below it.

Superior altitude is one great advantage in all phases of aerial fighting, so it can readily be conceived that pace box or who superior speed. It is believed, in fact, almost impossible to shoot at planes above, which, therefore, are left or set on the down side. It certainly seems that in a majority of cases the job of a fighter with vacuum climb will be largely of a surprise attack when the enemy is unprepared. One often hears it proposed that a plane with superior speed one field or two away, as he chooses. The truth of the matter is that such a plane can run away from a plane superior in climb if it does not choose to roll around and be attacked from above, but it cannot have a field.

The one great disadvantage of the metal air-cooled engine

is poor visibility above. In fighting such this is serious. It appears that a propeller gun sight may be necessary to obtain as a clear field of vision as well as out to see the enemy, but one had to fly higher equal to the enemy's in maneuverability, equal or even slightly inferior in speed and superior in climb and I will be well satisfied.

Look from the question of performance, the air-cooled fighter enters, does away with the complicated and troublesome radiator and water piping. As one pilot expressed it, "Get rid of the pretense plumbing and all your troubles are gone." With Hirths and PBs have given considerable radiator trouble in these matters has shown up that must be modified with greater material and better fitting. In down and in test answers, the radiator is bound to take quite a lot of punishment.

The Boeing at Annapolis at present has no order a number of standard Boeing and Curtiss fighters to be equipped with the Puffin 12-30 engine. When these orders are completed little doubt exists that no such fighters will soon be seen in Naval use. In an event, meanwhile, between the two types will continue to show the same line to race and, as a result, our fighter plane development should prosper.



The Boeing Apache, a British air-cooled fighter, equipped with the Armstrong Siddeley Jupiter 150 hp, air-cooled engine.

Huff Daland Dusters Go To Peru

According to a cable received recently by Edgar R. Huff, president of the Keystone Aircraft Corp., in Bristol, Pa., from the Peruvian Chamber of Commerce in Lima, Peru, the dust airplane outfit consisting with ground crew and plane will go as well as for the full month has been started and the entire outfit along of the Coast and Chocoma valleys are now being serviced.

Following the lead of other planes in the United States whose airplane dusting activities against insects of the hill were last year several times from a loss of crops aggregating over \$1,500,000, large cotton plantations in Peru and the Peruvian Department of Agriculture have requested an airplane dusting expedition from the United States to fight the insects.

It is planned to dust more than 50,000 acres of cotton in the Coastal and Chocoma valleys with sodium arsenite delivered by the Huff Daland duster airplanes. This expedition program will protect practically all the cotton grown in the Coastal Valley and most of the cotton in the Chocoma Valley against the boll weevil, an estimated saving of \$500,000.

The equipment of the expedition includes five Huff Daland duster airplanes powered with Wright Whirlwind engines, a Curtiss Jumbo to be used as a messenger airplane, two built two trucks and a loading cart. The material, not to mention the poison for the dusters, was deemed so important to cotton growers in the country that the Peruvian Government passed a special law exempting them from the usual duties and taxes.

The planes are flown at a speed of about 50 mph, twenty-five feet above the field to be dusted. The poison cast from the hoppers built into the airplane is caught in the head of the airplane's propeller, spread over a reach 200 ft. The Huff Daland Express has caught dust during either a heavy or light rainfall has been most effective.

The most serious problem of dusting was to protect airplanes with sufficient power and safety to operate at such a low altitude as was found constantly necessary. The dusting airplane, after numerous tests, evolved an airplane powered with a Whirlwind engine. This same type of plane has been used in the United States for several years and during 1935 dusted a total of 124,500 acres of cotton in Louisiana, Georgia, Mississippi and North Carolina.

The Curtiss Jumbo takes along by the expedition is used for communication during the busy season when the condition of the roads make ordinary travel by auto impossible.

The expedition will first fly over by A. B. Lupton, President of Peru, and A. K. Kline, the largest cotton planter in the country and also the plantations of Enrique Rios and Comares. The expedition is headed by Donald E. Huff and the members include J. B. Page, representative of the United States Bureau of Agriculture, Don E. Taylor, pilot; Henry E. Blount, pilot; H. L. Alvarado, pilot; M. Mariano Sanchez, business representative in Lima; Richard Brown, instructor; W. C. Miller and W. E. Borch, mechanics.

Airway Lighting Progresses

The work of lighting the various air mail routes is progressing rapidly. The twenty-four airway route which has been built in Route No. 3, Boston-New York, and twenty-one light have been placed in operation. The work is being done under contract with the Robinson Aircraft Corp.

All seven have been erected and five lights have been placed in operation along Route No. 1, Boston-New York. It has been impracticable to place the beacon for lighting the boundary lighting cables around the numerous cities, owing to the dense growth of the country. The installation of boundary lights will therefore be deferred until the frost has left the ground.

On Route No. 3, Chicago-Dallas, ten boundary searchlight towers have been placed in operation. These are between Forten, Ill. and Dubuque, Mo. Good progress is reported on the installation of airway lights between Oklahoma City, Okla., and Wichita, Kansas. This installation is almost completed.

Lighting of 130 miles of the northern end of Route No. 4, Pease-Elliott, has been completed and the lights are now in

operation. Reverse runs and high winds made the work difficult and in many instances the equipment was carried long distances by the men in order to get the equipment to the sites.

The Sperry Gyroscope Co., of Brooklyn, reports that it has manufactured an improved airway beacon which is directional in character, and which was made to meet the suggestions of the Department of Commerce. The beacon consists of a combination of three lights, one being the twenty-four inch standard revolving beacon, and the other two fixed lights mounted on the platform of the tower and pointed in both directions along the airway. The revolving beacon has been modified by the addition of a counter stop and bracket, through which a pilot cannot control the flashing mechanism when the tower lights.

It is proposed that each airway air data and dashes of the Morse code as its assigned distinctive character. The lights are synchronized so that when the revolving beacon swings the coming light beam from that beam, giving the combined effect of the two lights. The beacon will be placed on level at Norfolk, N. J., on Route No. 1.

Women Applicant For Commercial License

Maude Margaret Omba, a bar, residing at Memphis, Tenn., is the first woman airplane operator in the United States to apply for a Federal commercial license, such as now is issued by the Aeronautics Branch of the Department of Commerce.

Miss Omba, who has had 200 hr flying time in the air, has applied for a transport pilot's license, which permits an holder to operate in commercial aerial commerce, and to pilot any type of airplane.

Miss Omba's brother, Vernon C. Omba, of Memphis, is also an experienced pilot. During the past year Miss Omba has flown 120 hr.

New Canadian Airline

The Western Canada Airways, Ltd. has been incorporated under "The Companies Act" for the purpose of establishing and operating land or aerial services of aircraft of all kinds in Canada.

The company is also granted the right to carry passengers, freight and mail by air to engage in aerial advertising, to establish new routes, to make aerial photographic surveys, to operate, plan and conduct business enterprises, to acquire, lease and operate transportation facilities including the construction, purchase, sale and lease of airplanes, motorized aircraft and equipment of every kind in connection with it. The authorized capital stock is \$100,000.

Another corporation, the Canadian Air Express, Ltd., has been incorporated for substantially the same purposes as the Western Canada Airways, Ltd. The authorized capitalization of this company is \$1,000,000.

N.A.A. Makes Entries for Schneider Race

Arrangements have been made by the National Aeronautics Association that it has entered three entries to compete for the Schneider Trophy race, which will be held in Venice, Italy, next August.

The entries were made on Feb. 28, which was the last day such entry could be made. Whether the plane will fly by the plane can enter the machine themselves have yet been designated, but it will not be necessary to notify the Italian Aero Club, under whose auspices the race now will be held, until the month before the race takes place.

The date of the race has been tentatively placed between Sept. 1 and Nov. 1.

Elliwell Medal Delayed

No winner was chosen by the last Congress on Senator Cooper's bill, introduced Feb. 5, to create a Congressional Medal of Honor to Ensigns Ellsworth, who made the flight across the North Pole with Captain Amundsen and Gifford Smith on May 12, 1926.



Plane of the Peruvian Air Force on the Huff Daland Express. Right in left, there are, respectively, a D-12 and a Huff Daland Express. Right in right, a Huff Daland Express. Right in right, a Huff Daland Express.

Right: Office of the Peruvian Government. Left in right: Huff Daland Express. Right in right: Huff Daland Express. Right in right: Huff Daland Express.

Left: One of the Huff Daland Express in operation.

Peru Welcomes Huff-Daland Dusters

On the arrival at Lima, Peru, of Donald E. Huff, with the Huff Daland Dusters, which are engaged in carrying out the first ever dusting work ever done in that part of the world, a flying demonstration was put up by the Peruvian Air Force in honor of the American visitors. The picture at the top of the page shows an order of the American aircraft equipment which constitutes the Huff service of Peru.



The Warren School of Aeronautics

Feeling that there was a genuine need for a School of Aeronautics which will teach not only flying, but various engine work, airplane mechanics, navigation, instrument work, and meteorology, the Warren School of Aeronautics has been opened in Los Angeles.

The fact that under the new Department of Commerce Air Regulations not only pilots but airplane mechanics as well must be licensed, has led to the establishment of the school, and a most thorough and extensive course has been laid out. The school is headed by Charles A. Warren, who has operated the Warren Airplane Works, in Los Angeles, for the past four years, before that being engaged in aerial photo graphic work, and by Col. G. B. Shady, late B.A.F., who, during the War, had charge of Fleet Pilot, Portsmouth and the Coast Guard in England, examining League Airborne, Officer Candidates, and Army and later also meeting the Western Report Board.

Capt. E. Courten Williamson, B.A.F., is chief instructor and all instruction is under the personal supervision of Col. Shady and Capt. Williamson. Captain Williamson served his apprenticeship years during the War as Captain in the Royal Air Force and in Flight Commander in the Royal Naval Air Service and is especially qualified in airplane and flying boat work, instruments, and navigation.

A complete course in aircraft engine theory, construction, overhaul and repair, airplane design, construction, maintenance and repair, instrument work, meteorology and navigation, is given. This is the ground course, its addition to this, a complete flying course is given, which includes cross-country flying, aerobatics and parachute work.

In the flying division of the school, four different models of airplanes are used for instruction, and two additional types of new production machines will be added. The Ground School is located just above mountain from the base of the Los Angeles basin, district. The flying field has 4000 meters (feet) and can be worked to level to 100 feet. The advantages of a course of instruction which includes all phases of the subject both on paper and in more common work on the ground result in a well-rounded. A thorough knowledge of the details of construction of plane and engine is essential to a skilled pilot, as is a complete understanding of the flying possibilities and limits of the airplane.

Boeing to Use Wasp in Mail Planes

Announcement was made recently by the Pratt & Whitney Aircraft Company of Hartford, Conn., of the impact that use of new experimental engines may make for commercial purposes.

The Boeing Airplane Company of Seattle has purchased twenty-five 400 hp. Wasp engines for installation in mail planes. The Boeing Company recently secured from the Post Office Department the contract for carrying air mail from Chicago to San Francisco for a period of four years.

The Boeing mail plane carries a payload of 1400 lb. and flies at a high speed of approximately 150 m.p.h. The climb at the ground with the load is about 1000 ft. per min. The actual cruising speed of the plane ranges between 140 and 148 m.p.h. The plane will also be capable of carrying four passengers in a scheduled plane.

Mr. Boeing was in Hartford recently to inspect the facilities of the Pratt & Whitney Aircraft Company, and to conclude the final negotiations for the purchase of the engines.

"When we get this new commercial air mail service started in the Coast it will mean a great deal to Eastern and Western business men, for we not only will carry mail, but passengers and express as well. Our schedule calls for the trip from San Francisco to Chicago in twenty hours, in comparison with sixty-three hours by rail," he said. "We have selected the Pratt & Whitney Wasp engine because it is the most modern development of streamlined power plants, and because of the certified results which the United States Navy has obtained with it. The fact that it is an air-cooled engine makes it quite obvious that we can do away with the radiator and water and carry mail in less weight. As a matter of fact, we can carry a quarter of a ton more mail with the Wasp than we could with the previously used water-cooled Liberty engine."

Mr. Boeing added that his company had standardized the Wasp engine for their mail planes and the first twenty-five aircraft will be in the air by June will be in equipped.

The Pratt & Whitney Aircraft Company has been making a study of the application of their product for commercial use for some time and while their engine has been particularly developed and used by the Navy Department this order from the Boeing Company underlines the possibilities of the Wasp engine for commercial purposes.



Illustration under the Warren School of Aeronautics. The school is headed by Charles A. Warren, who has operated the Warren Airplane Works, in Los Angeles, for the past four years, before that being engaged in aerial photo graphic work, and by Col. G. B. Shady, late B.A.F., who, during the War, had charge of Fleet Pilot, Portsmouth and the Coast Guard in England, examining League Airborne, Officer Candidates, and Army and later also meeting the Western Report Board.



Curtiss Company Issues Annual Financial Statement

Curtiss Aeroplane and Motor Co., Inc. Issues Favorable Statement, Showing Progress in all Branches of the Organization

THE ANNUAL meeting of the stockholders of the Curtiss Aeroplane and Motor Company, Inc. held on March 23, 1937, L. M. Kinn, president, made the following financial statement of the operations of the company for the year 1936:

The summary of the Company's business for 1936, submitted herewith, shows the most satisfactory condition since the close of the War. The net earnings after Depreciation and Reserve for Federal Tax amounted to \$435,116.68, as compared with \$126,243.91 in 1935. During the year the preferred stock was put on a \$750 basis, which in its full dividend has been paid, if and when dividends are declared on the common stock, holders of the preferred stock will share pro rata. There are no arrears of preferred dividends.

Conservation Policy Observed

A conservative policy with respect to finance has continued throughout the year. The bonded debt was reduced by the sum of \$268,680. This reduction came about in connection with a debt of \$268,680 due to the United States Government on August 1, 1935, for the purchase of 100,000 shares of common stock at a price of \$2.6868 per share. The Government accepted this offer. The payment to the Government was made out of current funds of the company. The real savings, however, was in more than merely by not making mortgages owed by the company, the terms of which call for the payment of interest funds from 1931 to meet the principal of this Government mortgage. The mortgage paid was the first interest paid to the Government to that other principal not interest of the company's debt is a further burden on the company's manufacturing resources.

These mortgages were owned by the company as part of the plan under Curtiss Flight at Miami, one-half of which was sold by the company during the year 1936 and the remainder of which was sold during 1937. The sales were made at fair profits to the company, on the principle that this property at Miami was too valuable to be sold as a "frag" deal. Under the terms of sale funds retained, however, the sum of a part of the sale for several years that the experience of Curtiss Flight Service are not interfered with.

The pretorial liquidation of his mortgage notes the end of a long continuing financial policy which had its aim in take the company entirely out of debt. This policy began in 1926. At that time the bonded debt of the company was \$2,686,800 and the Sales and Accounts Payable were \$2,686,800, making a total of over \$5,373,600 of debt. The Balance Sheet for 1926 shows \$2,686,800 of bonded debt and \$2,686,800 of current liabilities. In the meantime the physical assets of the company had increased to \$2,686,800, making a total of \$5,373,600. At the end of 1936, all the bonded properties of the company are paid at liquidation value. All the items of current assets, \$2,686,800, are in the Balance Sheet are completely paid, and the company is now in a very strong position with respect to working capital, as well as fixed assets and liabilities.

Engineering Progress

The year was very interesting in the matter of engineering progress. The company maintained its place as one of the principal suppliers to the United States Army and received the first of substantial contracts from the United States Navy. Engineering progress was both rapid and steady during the year. The outbreak of engineering work by the company, noted in all the Annual Reports since 1923, has caused and the Engineering Division has been able to do enough and is now engaged in a larger volume of research and engineering development than at any time

during the past five years. Because for this change of policy are outlined in the part of the report dealing with the Government policies and legislation of the year. To put it briefly, it is the judgment of the officers that the policy of the Government in dealing with engineering firms has changed considerably in a wise and increasingly in the right direction. Effort and money in pushing forward the engineering branches of the industry at the present time, whereas it would have been most unwise in the preceding years.

The year 1936 saw the beginning of a new series of years, beginning with 1931, in which an extensive change of relations in speed matters was required for the places of the company. This year the Helms Corporation, with a new airplane, began to compete in 1936 for the two, won the Schneider Cup at Warfield, Va., competing with Curtiss airplanes designed and built in 1932 and equipped with an engine specially developed from the 1935 design. The Italian planes, engines and pilots were evolved and the World records were broken in the race by a wide margin. This episode has revealed that it is not always possible to measure superiority in the world without having to have up-to-date engineering development at all times. The effort has stimulated the high grade engineering firms of the whole country to renewed efforts and may be a very valuable lesson to the whole country. It is interesting to note that since the speed supremacy of the world has gone to Italy, both England and France have renewed their efforts in the direction, for it is a well established principle that with supremacy in speed it must also lead to an supremacy in aviation as a whole. The fact that flying airplanes in the heat of military aviation and the development of the last of the world's aviation is a very real benefit from racing. It is, therefore, necessary to go forward.

Five Year Program Favorable Future

As Act of Congress, approved July 2, 1936, provided, among other things, for the establishment of a definite five year program for Army and Navy and for a scheme of procurement matters in the purchase of airplanes and engines. The law was based upon more than two years' study of the airplane industry and the results of the study were presented to Congress, of which Hon. Elihu Root was chairman, and by the President's Board, of which Mr. Dwight D. Eisenhower was chairman. The work of this committee was thorough and the results were presented to Congress and their efforts by making the history of these committees the basis for the new law. This Act changed the whole status of American airplane industry and the maintenance of military machines. The five-year program itself means a fairly continuous flow of business in moderate volume for the next five years, provides a great incentive toward maintenance of the airplane industry and the government under the branch of the airplane industry a business instead of an adventure.

The government position, while still having many things to be done, is a very great improvement on all previous years in that they provide no incentive in the engineering firms to strive for excellence of product and thereby secure a steady and sufficient share of Government orders. In effect, it was aimed to encourage the industry, which by their own efforts, produced substandard devices and high performance for the Army and Navy, shall be able to go forward in the manufacturing of their own products at reasonable prices and shall be in a position to produce, maintain, and improve of those which produce nothing new but are sold as the manufacturers of other people's products. The

Fl. Lauderdale, Fla.

By Bob Johnson, Jr.

Marie L. Pegg, a local pilot, and H. G. Mills, who had been in the plane, because modern balloons. Crosses recently, when they took off from Eggy Field in his Waco and landed toward Kansas, the capital of the Johnson family, which is located on New Providence Island, 120 miles off the Florida coast.

The start of the flight was made at 4:26 p.m. Feb. 7, and while still under way from their destination, they encountered a strong headwind, at an altitude of 7,000 ft. and were overtaken by darkness. Mr. Pegg was unable to see his compass, and with no backup lights, or other means to help him, he decided to land. Fortunately he was able to discern the mud flats of Andrew Island, a former pile of coral rock and stagnant mud flats, which extend twelve miles from the shore.

The pilot made a good landing, with the visibility almost nil, but towards the end of the run, the plane rolled into a soft spot and soon over, landing on a side of the Cuban Road opposite to nearly right angles to the shore.

From the night of Feb. 7 to the night of Feb. 8, the two men remained on Andrew Island, in all efforts to free the plane from the mud flat. They were entirely without food and without the only water from the island. At one time they secured a little sleep, as much as one could in wet clothes, without food and without from exposure. They succeeded in placing the plane in its normal position, but the landing gear was submerged in the mud, up to the trailing edge of the lower wings, and at high tide the water was several inches over the cockpit seats.

At 6 p.m., Feb. 8, they made out a black spot on the horizon. It proved to be a small speckling of clouds, caused by five persons. An improvised fire was made of a machine and a machine, which attracted the attention of the ship. The boat was taken aboard, and moved for. They learned from the crew that the boat was the only one that passed this spot, making four trips a year on the opposite coast. The following morning, the crew of the ship returned the plane and in turn it was ready for the flight to Kansas. On reaching that city, a winning exhibition was held and a landing made near the city.

The day following the landing, a temporary museum was built, and the plane took off for Ft. Lauderdale making the trip in 2 hr., 30 min.



Silverton, Colo.

More than the part of pilots of the 150 Observation Squadron, Colorado National Guard, which arrived the two ships, and which had in their object the making of the national population of Silverton and Durango, meeting town in the southwestern part of the state, met with success on March 5, when Capt. Dan Korman, first officer Silverton, Lieutenant Korman, accompanied by Capt. Clyde Black, left Silverton on the morning of March 5, crossed the continental divide at Montrose, Pa., at 10:22 a.m. and passed Durango at noon. This was the first time this part of the range had been seen by plane.

The distance between Denver and Silverton is 200 miles, and Lieutenant Korman's achievement came after two Silverton pilots had made two unsuccessful attempts in being seen to the southwestern town on March 6.

When the plane was observed, the city's town announced the fact to those not already well-known. The Douglas observation plane, which the city used, carried with it compasses, 200,000 sets of lighters, altimeters and other aerial supplies.

The battle of the air was carried with several feet of snow, making a landing impossible. The plane, however, dropped its cargo, swung around and returned to Denver.

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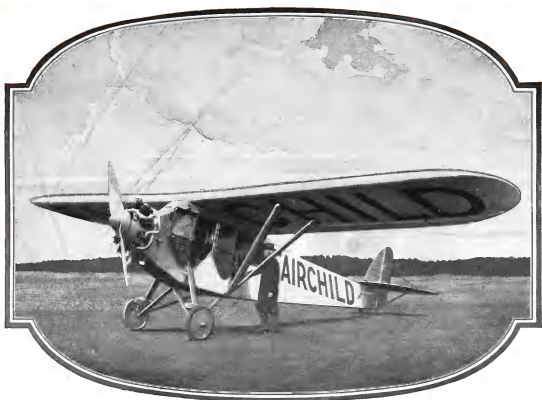
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